DMS-7200

Timber Posts and Blocks for Metal Beam Guard Fence

Effective Date: January 2021

1. DESCRIPTION

This Specification governs material requirements for round timber posts, rectangular timber posts and timber blocks for use with metal beam guard fence.

2. UNITS OF MEASUREMENTS

The values given in parentheses (if provided) are not standard and may not be exact mathematical conversions. Use each system of units separately. Combining values from the two systems may result in nonconformance with the standard.

3. MATERIAL PRODUCER LIST

The Materials and Tests Division (MTD) maintains the Material Producer List (MPL) of pre-approved timber treating plants. Only material treated or supplied from sources appearing on the MPL, entitled "Timber Treating Plants and Suppliers," can be used on Department projects.

4. BIDDERS' AND SUPPLIERS' REQUIREMENTS

The Department will only purchase or allow on projects those products listed by producer and product code or designation shown on the MPL.

Use of pre-qualified product does not relieve the Contractor of the responsibility to provide product that meets this Specification. The Department may inspect or test material at any time and reject any material that does not meet the specifications.

5. MATERIAL REQUIREMENTS

5.1. **Species.** Use posts and blocks of Southern Pine, including minor species as defined in ASTM D 1165.

5.2. **Grade.** Use Grade No. 1 rectangular posts, as designated by the Southern Pine Inspection Bureau, with a minimum Fb of 3.0 ksi (Load and Resistance Factor Design) or better. The strength value and grading are in accordance with ASTM D 2555 and ASTM D 245.

5.3. Dimensions.

5.3.1. **Round Posts.** Round posts must conform to the American National Standards Institute (ANSI) Standard 05.1, except as modified herein.

Round posts must not vary more than + 3/8 in. - 1/8 in. from the specified diameter at any point, as determined by a circumference-diameter tape.

Do not use posts that vary more than 1 in. from the specified length.

5.3.2. **Blocks and Rectangular Posts.** Blocks and rectangular posts must have cross-section of 6 x 8 in., less any routing, notching, or finishing. Do not vary these dimensions by more than 1/4 in.

Do not use posts that vary more than 1 in. from the specified length.

Do not use blocks that vary more than 1/4 in. from the specified length.

5.4. Manufacture.

5.4.1. **Posts and Blocks.** Drill holes as shown on the plans for all posts and blocks with location tolerance of 1/4 in. in any direction.

5.4.2. **Posts.** Remove outer and inner bark. Trim knots and knobs smooth and flush with the surface.

5.4.2.1. **Round Posts.** Fabricate round posts with domes.

- Fabricate domes:
  - to be approximately hemispherical in shape with the radius 1/2 the diameter of the post at the base of the domed portion,
  - with a smooth finish, and
  - with the distance from the top of dome to the base of dome not varying by more than 1 in. at any location.
- Smooth shave round posts by machine. Permit no ringing, caused by an improperly adjusted peeling machine.

Do not exceed 3 in. diameter for any single knot.

Do not exceed 8 in. for the sum of diameters of all knots greater than 0.5 in. in any 1 ft. section.

Do not allow scars, as defined in ANSI 05.1, if the depth of the trimmed scar is more than 1 in.

5.4.2.2. **Rectangular Posts.** Rough saw or surface 4 sides, full size, hit-or-miss. Use only one type of surface finish per installation.

Do not exceed 2-3/4 in. diameter for any single knot or equivalent displacement on the centerline of the 8-in. face.

Do not exceed 2-in. diameter for any knot or equivalent displacement on the edge of the 8-in. face.

Do not exceed 2-1/4-in. diameter for any single knot or equivalent displacement on the centerline of the 6-in. face.

Do not exceed 1-1/2-in. diameter for any single knot or equivalent displacement on the edge of the 6-in. face.

5.5. **Shape and Straightness.** Do not allow posts where a straight line drawn from the center of the top to the center of the butt of any post deviates from the centerline of the post by more than 3/4 in. at any point. Ensure that all posts are free from reverse bends.

5.6. **Splits and Shakes.** Do not use posts with splits or ring shakes in the top. Do not use posts with splits in the butt. A single shake in the butt is permitted provided it is not wider than 1/2 the butt's diameter (round posts) or 1/2 the narrowest width (rectangular posts).

5.7. **Blocks.** Use blocks of medium grain, with a minimum of four rings per inch on one end, and free from splits, shakes, compression wood, or decay in any form. Knots are permitted provided they are sound or firm and

are limited in cumulative width to no more than 1/2 the width of the face. Wane or the absence of wood will be limited to 1/3 of the face on no more than 10% of the lot. Grain deviation is limited to 1 in. in 6 in. Rough saw or surface four sides, full size, hit-or-miss.

5.8. **Markings.** Mark the post-length of 7-ft. long posts for metal beam-guard fence transitions (with thrie-beam rail element) by branding. Use marks that are:

- located within the top 1-ft. region of the post,
- at least 5/8 in. high, and
- visible after installing the metal beam-guard fence transition.

5.9. **Treatment.** Treat posts and blocks with preservative in accordance with Item 492, "Timber Preservative and Treatment." Treated round posts will have a minimum sapwood depth of 1 in. as determined by examination of the tops and bottoms of each post. Before treatment, inspect air-dried or kiln-dried material for moisture content in accordance with American Wood-Preserver's Association, AWPA Standard M2. Conduct tests of representative pieces.

The lot is acceptable when the average moisture content does not exceed 25%. Reject individual pieces that exceed 29% moisture content and remove them from the lot.